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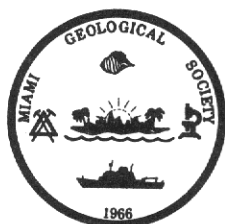
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HISTORY OF GOLDMINING ON THE ISLAND OF ARUBA
DUTCH WEST INDIES

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ABSTRACT

The island of Aruba, an area of some 190 km², forms with Curacao and Bonaire, the Leeward Netherlands Antilles, the western section of an E-W running chain of islands and atolls on the Venezuelan continental borderland in the southern Caribbean. This borderland, consisting of ridges and trenches, is a broad orogenic belt of Mesozoic and younger age rock at the boundary of the Caribbean plate with the South American plate. Its geological history was particularly characterised by strong magmatic activity during the Cretaceous and high structural mobility in Cretaceous and Tertiary times. In this connection the igneous (magmatic) rock series of Aruba, Bonaire and Curacao are considered to belong to a well defined colliding island arc whose high pressure metamorphism resulted of the E-W Aruba-Blanquilla chain with the South American continental margin. The stratigraphy, structural relations and radiometric dating of the intrusive rocks indicate that the collision took place in Upper Cretaceous time, during the Coniacian/Campanian interval. The igneous rocks consist largely of the Aruba tonalite/gabbro batholith, which is of calc-alkaline composition.

INTRODUCTION

It is interesting to note that the Spanish words "Oro Uba" meaning there was gold, are thought to be the origin of the name "Aruba".

The island of Aruba is located in the Caribbean Sea, 15 miles off the coast of Venezuela centered at 70° 00' W longitude and 12° 30' N latitude. The island is oriented in a NW - SE direction obtaining a maximum length of approximately 20 miles, and a maximum width of approximately 4 miles.

The major commodity of interest on the island is gold with associated copper and possibly silver. Records from the past indicate that some 35,000 troy ounces of gold has been exported from the island. Most of the gold exported was from narrow high grade mesothermal quartz veins running at various angles within the intrusive contacts. The gold is intimately associated with non-descript sulphides due to the advanced stages of oxidization of the sulphide minerals. Known places where gold has been found include: Tibushi, Alto Vista, Calabas, Ceru Gerard, Ceru Cristal, Bushiribana, Matrividiri, Santa Lucia and Mira La Mar. Placer gold has also been located in the numerous arroyos (roois) between and amongst these gold producing areas. (Refer to Fig. 1)

LOCAL GEOLOGY

The island of Aruba has a volcanic and metavolcanic core consisting of chloritic tuffs and schists with associated volcanic breccias and volcanosediments of primarily mafic (diabase) affinities. Uralitization has taken place in some of the diabase converting the pyroxene to hornblende, due to a late magmatic process. A large batholith has intruded into the original core obtaining a length of nearly 12 miles and a width of 2.5 miles, with a unknown depth. The perimeter of the batholith when in contact with the volcanics displays a very strong contact metamorphic relationship altering the volcanics immensely. The batholith is essentially quartz dioritic in composition grading to a diorite and gabbro along the central northern edge of the island. Porphyritic dykes possibly associated with the intrusion, have entered the volcanics in a more or less east-west direction. Quartz veining is evident through much of the quartz diorite, entering the intrusive as late stage epigenetic masses through zones of weakness (fault zones, fractures and intrusive contacts). These veins are multidirectional and vary in width from a few inches to twenty feet and obtain lengths of up to several thousand feet, with unknown depths. Quaternary limestones lap on and surround the quartz-diorite-volcanic mass. Recent dunes form beaches along the coastline, particularly along the northeast rugged coast, and along the northwest limestone coast.

HISTORY

In March 1824 gold was discovered on the north coast of Aruba in Rooi Fluit, by a young Aruban tending sheep. Tradition has it that he presented this sparkling rock to his father who later showed it to a merchant in the city of Oranjestad. This merchant offered the man \$17.00, which was accepted, and the merchant in turn sold it for \$70.00. Rumours of this gold discovery spread on the small island until everyone who tended sheep searched the arroyos for gold.

The next find was reported near Rooi Daimari and after five months several sizeable nuggets and much fine flour gold had been collected totalling 25 lbs of gold (current 1987 value of \$150,000).

An old report by the Aruba Island Mining Company Ltd. dated July 4, 1872, indicated that large quantities of free gold and deposits containing pieces of pure gold weighing from thirty to forty four lbs. were found, some of these are on display in a museum in Leyden, Holland.

The Netherlands government realized the economic significance of finding gold on one of

their islands and took measures to curb this new local pastime. All regions where gold was found were declared "not free" and the government sent soldiers to guard these areas. The areas around Diamari, Lagabi (Rooi Fluit) Wacobana, Arikok and Hadicurari were all closed to these primitive prospectors.

The gold was primarily recovered by crude placer mining processes which involved digging clay out of the arroyos and allowing it to dry in the sun, all the hardened parts were beaten into small pieces.

The large nuggets of gold were plucked out, and the remainder of the clay was ground up (presumably by mortar and pestle) leaving behind the smaller grains of flakes of gold. The remainder of the clay was diluted with water allowing the gold to gravitate to the bottom. In 1854 commercial firms realized that much of the gold was being lost in this antiquated milling method, and they imported crushing mills, establishing them proximal to the main producing areas. Up until this time everyone who looked for gold was required to hand it over to the government for a set price. In 1854 this system was abandoned and concessions were granted to the commercial mining firms. John Taylor and Sons of London England was one of these firms. This company did most of their work on one vein being the "Mira La Mar" just north of Jamanota the highest elevation point on the island. This vein was mined to a depth of 650 feet, and possibly to the 900 foot level. Old records indicate that in the last 8 years of operation "Mira La Mar" processed some 12,000 tons of ore with a average grade of 1.1 oz gold per ton and 0.20 oz silver per ton.

In 1872, Aruba Island Gold Mining Company Ltd., built a milling plant near Bushiribana on the north coast of the island. This mill processed the ore that was mined at Ceru Plat for a period of ten years. (the ruins of which are still standing). In 1899 Aruba Gold Concessions Ltd., built a smelting works at Balashi which apparently processed the ore from the "Mira La Mar" vein and the other veins in the central portion of the island.

In 1916 the materials required to purify the gold ore (amalgams) were no longer available due to World War I and gold mining in Aruba ceased. During the 92 years from 1824 to 1916, some 1340 kg of gold bullion had been exported. The production records of gold in Aruba were as follows (translated from dutch to english by Maj. Edward D. Fowler R.A.). Note: these production figures were provided for taxation purposes, who knows how much gold really left the island.

1824-1830	Government	90.396 kg
1830-1854	Free gold digging	Production unknown
1854-1874	Concession de Jongh	1.233 kg
1874-1879	Concession A.I.G.M. Co.	77.070 kg
1895-1900	Concession A.A. Co.	58.500 kg
1901-1908	Concession A.G. Concession	719.829 kg
1909-1916	Concession A.G. Company	391.600 kg
Total		1,338.628 kg

[Current market value at \$400 U.S. per ounce,
1340 kg = 35,449.97 troy ounces = \$14.2 Million U.S.]

These results, combined with the fascinating mining history of the island enticed Monte Carlo Gold Mines to become interested and to try to re-establish the island as a major gold producer, pending successful exploration results on the island.

Between 1924 and 1987 some minor drilling did take place, however the results showed nothing of significance to the Aruba Gold Project.

PROPERTY (GOLD CONCESSIONS)

In late September 1987 Monte Carlo Gold Mines signed an agreement with Canarub and the Aruban government, granting Monte Carlo Gold Mines exclusive rights to explore for and develop gold on the island.

PRESENT EXPLORATION

Monte Carlo Gold Mines has visited the areas of previous gold production and viewed most of the some 200 veins that have been located, over the past 162 years. It was evident that the primitive Aruban miners which were capable of producing the 35,000 troy ounces of gold used very antiquated mining methods, as well as, gold recovery procedures. Their operations were closed down due to lack of amalgam and cyanide to treat the ore due to the war effort (World War I) and also the content of gold in the vein systems. Current mining and metallurgical technology would alleviate the problems of the past that the early miners had and would definitely increase the production from any potential minesites, and would increase the bullion production from any ore mined. It is estimated that less than one twentieth of Aruba's gold has been mined to date leaving Monte Carlo Gold Mines with a very good chance of success.

At present, work has focussed on three areas, these being Arikok, Asiboca and Kadoeshi. In each of these situations, rich quartz veins have been previously exploited. The average grade reported in the literature appears to have been about 0.5 oz gold per ton, although bonanza-type values (in the hundreds of ounces per ton) are also known to have been extracted from the surface caps to the veins in the mid to late 1800's. Monte Carlo's strategy is to sample the wallrocks in the old workings, and compile sufficient channel assay data to establish the mineable widths of the vein systems. In the past, the wallrocks (which are often impregnated with smaller auriferous vein networks) have been ignored. Drilling of these and other prospects carried out by James Gill in the 1940's substantiated the depth continuity to some of the veins.

In one instance (Mira La Mar lode), the main vein was detected at a vertical depth of 1200 feet. At Arikok, for example, visible gold has been identified in a quartz vein on surface which has been traced for 500 feet +, and has the potential to be extended (on the basis of quartz float), for an additional 1200-1500 feet. In 1987, Robert Salna also discovered several large (50-150 pound) boulders which assayed 2000-8000 oz/t gold in the vicinity of this vein. In 1988, while cleaning out an old pit that was dated about 1820 to 1830 judging from the vintage of some coins that were found nearby, a large quartz sample was found relatively in place which exhibited similar values.

At Asiboca, Monte Carlo has mapped and sampled a number of quartz veins with a known strike length of 1200 feet, which average (to date) 0.22 oz/t over 7 feet, and 0.08 oz/t over 20 feet. Assays of grab samples from trenches on strike with these veins have been recorded up to 8 oz/t. At Kadoeshi, a robust quartz vein has been excavated to a depth of 50 + feet, over a strike length of 300 feet. Samples of wallrock indicate grades ranging from 0.05 to 0.3 oz/t gold. Similar values have been intersected 200-300 feet below surface in historic drilling.

Recent metallurgical testing performed by Casmyn Engineering of Oakville on the various gold

ores of Aruba indicate:

- 1) That there are no metallurgical problems related to the Aruba ores.
- 2) Using an 80% grinding to -200 mesh with a cyanide process recovers 90% to 99% of the gold from the ore.
- 3) Using an agglomeration technique with a 3/8" crush and using a heap leaching technique provides an 80% gold recovery with a ten day leaching cycle.

Monte Carlo Gold Mines, the current holder of the exclusive right to explore Aruba through it's wholly owned subsidiary Canarub N.V., is currently in the process of establishing a 100 ton a day placer mill, and a 200 ton per day heap leach mill in order to process some 75,000 to 100,000 tons of dump material and tailings grading between 0.08 to 0.20 oz gold per ton.

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- Gold prospect
- ▲ Historic gold mill
-  Priority exploration in volcanics for epithermal gold
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- * High grade boulders, assayed up to 2500 opt / 150 opt gold silver
- Dykes

TAYLOR VEIN

KADOESHI PROJECT:
Includes historic drill intercepts up to 0.19 opt over 35 feet below workings. Open pit target.

ARIKOK PROJECT:
Vein traced over 500 feet; potential for 1500 feet

MIRA LA MAR:
Workings to 650 feet, possibly 900 feet; drill intersections at -1200 feet.

Major transcurrent fault - shear zone, prospecting target

BALASHI PROJECT:
Tailings r recovery 75,000 tons; 0.085 opt Au

ASIBOCA PROJECT:
Extensive veins, trenched over 1200 feet; potential for 3000-4000 feet strike. Open pit target.

